REMARKS

Claims 1, 2, 5, 6, 9, and 10 are rejected under 35 USC §102(e) as being anticipated by Benmohamed et al. (US Patent No. 6,795,399). Claims 13 and 14 are rejected under 35 USC §103(a) as being unpatentable over Benmohamed as applied to claims 1, 2, 5, 6, 9, and 10 above, in view of Debey (US Patent No. 6,519,693). Claims 3, 4, 7, 8, 11, 12, 15, and 16 are objected to as being dependent on a rejected base claim, but otherwise allowable if rewritten into independent form that includes all of the features of the base claim and any intervening claims.

By way of this amendment, claims 1, 5, 9, and 13 are canceled without prejudice or disclaimer. Claims 2, 3, 4, 6, 7, 8, 10, 11, 12, 14, 15, and 16 are amended to improve form and to place these claims in allowable form. New claims 17 and 18 have been added. Claims 2, 3, 4, 6, 7, 8, 10, 11, 12, and 14-18 remain pending. No new matter is added by way of this amendment.

Objections

The Examiner objects to claims 3, 4, 7, 8, 11, 12, 15, and 16 as being dependent on a rejected base claim, but otherwise allowable if rewritten into an independent form that includes all of the features of the base claim and any intervening claims. Applicant acknowledges with gratitude the indication that claims 3, 4, 7, 8, 11, 12, 15, and 16 contain allowable subject matter. Applicant has amended claim 3 to include the features of claim 1, has amended claim 7 to include the features of independent claim 5, has amended claim 11 to include the features of independent claim 9, and has amended claim 15 to include the features of independent claim 13. Claims 3, 7, 11, and 15 are in independent form and are believed allowable.

Claims 2 and 4 depend from independent claim 3, claims 6 and 8 depend from independent claim 7, claims 10 and 12 depend from independent claim 11, and claims 14 and 16 depend from independent claim 15. These dependent claims are believed allowable based on the amendments to claims 3, 7, 11, and 15, respectively.

35 USC §102 Rejections

Claims 1, 2, 5, 6, 9, and 10 stand rejected under 35 USC §102(e) as allegedly anticipated by Benmohamed. Applicant has canceled claims 1, 5, and 9 without prejudice or disclaimer. The 35 USC §102(e) rejection of claims 1, 5, and 9 is moot in view of the cancellation of these claims.

Independent claim 3 recites a communication network designing circuit for multiple point communication service for permitting arbitrary communication within a predetermined range by providing traffic flowing in from an ingress node through which data flows in from another network and traffic flowing out from an egress node through which data is fed to the other network, including setting means for setting a mathematical programming problem for deriving said multiple point communication service to permit arbitrary communication within the predetermined range, the setting means including optimization reference generating means for setting an objective function for minimizing a link load in an object network coupled to the other network and serving as an optimization reference and setting a constraint expression for deriving said link load, per-user necessary link capacity calculating condition generating means for generating a constraint expression for calculating a necessary link bandwidth for each link carrying traffic flowing in from each ingress node, and link including condition generating means for generating a constraint expression so as not to exceed a link capacity limit in each

link. The communication network designing circuit also includes optimizing means for solving the mathematical programming problem set by said setting means and obtaining a path for said multiple point communication service. Benmohamed does not disclose or suggest at least one of these features.

For example, Benmohamed does not disclose or suggest the setting means including optimization reference generating means for setting an objective function for minimizing a link load in an object network coupled to the other network and serving as an optimization reference and setting a constraint expression for deriving said link load, per-user necessary link capacity calculating condition generating means for generating a constraint expression for calculating a necessary link bandwidth for each link carrying traffic flowing in from each ingress node, and link including condition generating means for generating a constraint expression so as not to exceed a link capacity limit in each link, as required by claim 3. Since claim 2 depends from claim 3, Benmohamed does not disclose or suggest the features of claim 2.

Applicant respectfully requests withdrawal of the 35 USC §102(e) rejection of claim 2 for at least the reasons presented above.

Independent claim 7 recites a communication network designing method for multiple point communication service for permitting arbitrary communication within a predetermined range by providing traffic flowing in from an ingress node through which data flows in from another network and traffic flowing out from an egress node through which data is fed to the other network, including setting a mathematical programming problem for deriving said multiple point communication service to provide arbitrary communication within the predetermined range, the setting including setting an objective function for minimizing a link load in an object

network operatively coupled to the other network and where the objective function serves as an optimization reference, setting a constraint expression for deriving said link load, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link. The designing method also includes solving the mathematical programming problem set by said setting and obtaining a path for said multiple point communication service. Benmohamed does not disclose or suggest at least one of these features.

For example, Benmohamed does not disclose or suggest setting an objective function for minimizing a link load in an object network operatively coupled to the other network and where the objective function serves as an optimization reference, setting a constraint expression for deriving said link load, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link, as required by claim 7. Since claim 6 depends from claim 7, Benmohamed does not disclose or suggest the features of claim 6.

Applicant respectfully requests withdrawal of the 35 USC §102(e) rejection of claim 6 for at least the reasons presented above.

Independent claim 11 recites a storage medium storing a communication network design control program for designing a communication network for multiple point communication service for permitting arbitrary communication within a predetermined range by providing traffic flowing in from an ingress node through which data flows in from another network and traffic flowing out from an egress node through which data is fed to the other network, said

communication network design control program including setting a mathematical programming problem for deriving said multiple point communication service to provide arbitrary communication within the predetermined range, the setting including setting a constraint expression for deriving a link load, generating a constraint expression for selecting a route for traffic flowing in from the other network, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link. The storage medium also includes solving the mathematical programming problem set in said setting step and obtaining a path for said multiple point communication service. Benmohamed does not disclose or suggest at least one of these features.

For example, Benmohamed does not disclose or suggest setting a mathematical programming problem for deriving said multiple point communication service to provide arbitrary communication within the predetermined range, the setting including setting a constraint expression for deriving a link load, generating a constraint expression for selecting a route for traffic flowing in from the other network, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link, as required by claim 11. Since claim 10 depends from claim 11, Benmohamed does not disclose or suggest the features of claim 10.

Applicant respectfully requests withdrawal of the 35 USC §102(e) rejection of claim 10 for at least the reasons presented above.

35 USC §103 Rejections

Claims 13 and 14 are rejected under 35 USC §103(a) as allegedly being unpatentable over Benmohamed as applied to claims 1, 2, 5, 6, 9 and 10 above, in view of Debey. Applicant has canceled claim 13 without prejudice or disclaimer. The 35 USC §103(a) rejection of claim 13 is moot in view of the cancellation of this claim.

Independent claim 15 recites a transmission medium transmitting a communication network design control program for designing a communication network for multiple point communication service for permitting arbitrary communication within a predetermined range by providing traffic flowing in from an ingress node through which data flows in from an other network and traffic flows out from an egress node through which data is fed to the other network said communication network design control program including setting a mathematical programming problem for deriving said multiple point communication service to provide arbitrary communication within the predetermined range, the setting including setting a constraint expression for deriving said link load, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link. The transmission medium also includes solving the mathematical programming problem set in said setting and obtaining a path for said multiple point communication service. Benmohamed and Debey alone or in any reasonable combination do not disclose or suggest at least one of these features.

For example, Benmohamed and Debey do not disclose or suggest setting a mathematical programming problem for deriving said multiple point communication service to provide arbitrary communication within the predetermined range, the setting including setting a

constraint expression for deriving said link load, generating a constraint expression for calculating a necessary link bandwidth of each link carrying traffic flowing in from each ingress node, and generating a constraint expression so as not to exceed a link capacity limit in each link, as required by claim 15. Since claim 14 depends from claim 15, Benmohamed and Debey do not disclose or suggest the features of claim 14.

Applicant respectfully requests reconsideration and withdrawal of the 35 USC §103(a) rejection of claim 14.

New Claims

New claims 17 and 18 have been added. Claims 17 and 18 are believed to be patentable over Benmohamed and Debey alone or in combination.

For example, neither Benmohamed nor Debey disclose or suggest a method for determining traffic capacities for nodes in a network, where the method includes specifying a range having a boundary forming an area that includes a plurality of nodes making up the network; identifying a first one of the plurality of nodes that is proximate to the boundary as an ingress node to make incoming traffic available to other nodes in the network; identifying a second one of the plurality of nodes that is proximate to the boundary as an egress node to make outgoing traffic from the network available to another network; identifying an incoming traffic rate for the ingress node; identifying an outgoing traffic rate for the egress node; determining paths from the ingress node to the egress node that carry the incoming traffic via at least a subset of the plurality of nodes; calculating link capacities for the determined paths; and determining traffic capacities for the at least the subset of the plurality of nodes using the calculated link capacities.

Benmohamed and Debey, alone or in combination, are silent with respect to specifying a range having a boundary forming an area that includes a plurality of nodes making up the network. In addition, Benmohamed and Debey, alone or in combination, do not disclose or suggest identifying a first one of the plurality of nodes that is proximate to the boundary as an ingress node to make incoming traffic available to other nodes in the network, or identifying a second one of the plurality of nodes that is proximate to the boundary as an egress node to make outgoing traffic from the network available to another network. Benmohamed and Debey, alone or in combination, further do not disclose or suggest identifying an incoming traffic rate for the ingress node, identifying an outgoing traffic rate for the egress node, determining paths from the ingress node to the egress node that carry the incoming traffic via at least a subset of the plurality of nodes, calculating link capacities for the determined paths, and determining traffic capacities for the at least the subset of the plurality of nodes using the calculated link capacities.

For at least these reasons, Applicant respectfully requests that new claim 17 be allowed. Claim 18 depends from claim 17 and is believed allowable for reasons similar to those presented in connection with claim 17.

CONCLUSION

In view of the foregoing amendment and remarks, Applicant respectfully requests the

Examiner's reconsideration of this application, and the timely allowance of the pending claims.

Applicant respectfully requests that the present amendment be entered because the present

amendment places the application in immediate condition for allowance.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is

hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess

fees to such deposit account.

Respectfully submitted,

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